



MISSOURI CONSERVATIONIST

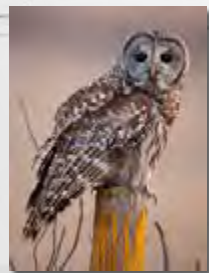
VOLUME 84, ISSUE 10, OCTOBER 2023
SERVING NATURE & YOU

Discover what's ON SALE NOW



2024 NATURAL EVENTS CALENDAR

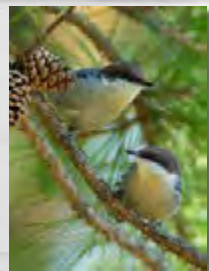
Keep in touch with the year's seasonal changes. Each month offers a reminder of the state's natural treasures, and daily notes keep you posted on what's blooming or nesting. **01-0367 — \$9**



OWL & NUTHATCHES NOTE CARD SETS

MDC's new notecard sets are great for gift giving. Each set includes 12 cards, 4½ by 6 inches, and envelopes.

Barred owl perched on a paint-chipped fence post. **01-0321 — \$8**



Brown-headed nuthatches recently restored in Missouri Ozark woodlands. **01-0320 — \$8**

STRANGE BUT TRUE

The creatures that inhabit Missouri are remarkable, diverse, and ... strange. It's a weird, wild world out there and you can learn all about it in MDC's book, *Strange but True*. Adapted from the pages of the award-winning children's magazine *Xplor*, *Strange but True* is a 136-page, full-color book that offers more than 350 fun facts about Missouri wildlife at its strangest. **01-0300 — \$8.95**



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Recently updated, this 514-page guide to Missouri's amphibians and reptiles provides descriptions, distribution, habitats, habits, breeding, and other information on nearly 120 native species. Illustrated with more four-color photos and pen and ink drawings than before, this soft-cover guide includes updated taxonomy, common names, and distribution maps, expanded *Guide to Missouri's Tadpoles*, and a new section for established, nonnative species. **01-0299 — \$29**

NATURE NOTES CONEFLOWER JOURNAL

Whether you want to draw or write about nature, this spiral-bound notebook will get you started. Tips on keeping a nature journal from MDC naturalists and blank pages await you in this notebook. **01-0113 — \$8**



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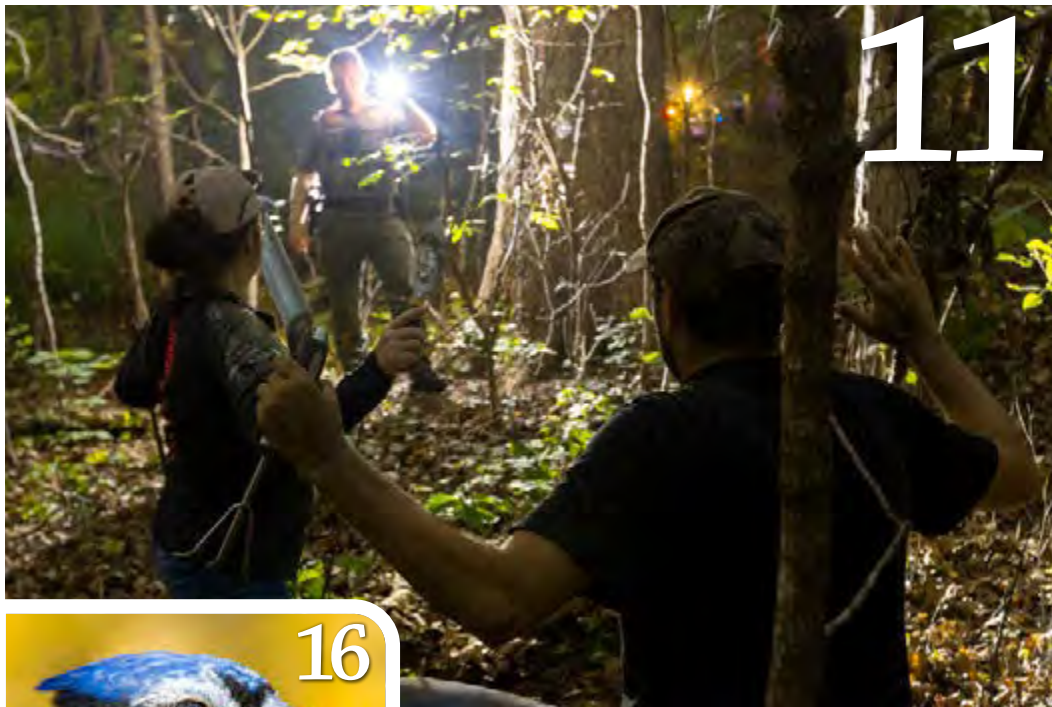
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MISSOURI CONSERVATIONIST



ON THE COVER

The sun sets over Peck Ranch Conservation Area

NOPPADOL PAOTHONG

24mm lens, f/13
0.3 sec, ISO 200

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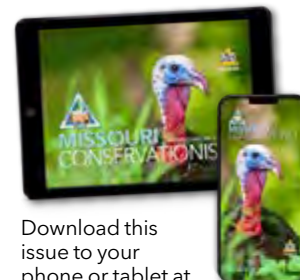
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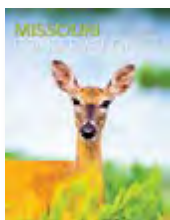
Inbox



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

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BEAUTIFUL DOE
The cover of the August issue is mesmerizing. Both sides of her face nearly mirror each other. Great photo! She's perfect.

James Cobb
St. Peters

SENIORS AFIELD

We enjoyed the article in the August *Conservationist* about Bessie Hume (and other senior adults) and their deer-hunting escapades [*Seniors Afield*, Page 10]. Bessie and her husband, Harold, used to attend the same church as we do (FBC Branson), and I recall seeing a huge fish on display there that she had caught, I believe in Alaska. She was – and apparently, still is – quite a gal. Thanks for a really good article.

Mabe Davidson via email

I look forward to every issue of your magazine. As a resident of a retirement community, I was delighted to read the article about Baptist Homes & Health Care Ministries and the National Deer Association's collaborative efforts to get local seniors out in nature. Bravo!

One of our own residents, 90-year-old Lucy, is well known by our community to be an active (and very successful) deer hunter. She's been deer hunting for about six years with the help and guidance of her very close-knit family. Lucy agrees, "you're never too old," and she's looking forward to deer hunting again this season.

Mary Ann Reid Ballwin

RESTING IN NATURE

Resting in Peace with Nature was an article I never dreamed would be published in the *Conservationist* [August, Page 21]. Calvary Cemetery is full of Quinns, and the last thing I thought I would consider Calvary to be was a conservation area. I lived in St. Louis and Berkeley for 25 years and never heard of Greenwood. It is, however, on my list of places to see on my next trip to St. Louis.

Thanks to Dan Zarlenga and David Stonner for a most informative article. Great magazine. Keep up your good work.

Joe Quinn Columbia

FIRST-TIME READERS

Great job on the August issue. I loved reading it! This was my first time reading a *Missouri Conservationist* magazine, though after seeing all the beautiful, vibrant pictures and interesting articles, I'll be sure to read more.

Riley Shelton via email

I was just referred to this great magazine. I'm a native of north St. Louis County, graduate of University of Missouri-St. Louis, and left Missouri for job opportunities in 1978. I have lived in four other states. This is by far the best state outdoor publication I have seen. Thanks for great articles like the one in the August 2023 issue on St. Louis cemeteries. Great work! I'm glad to have reconnected.

Mike Knarr Meridian, Idaho

Connect With Us!



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Have a Question for a Commissioner?

Send a note using our online contact form at mdc.mo.gov/commissioners.

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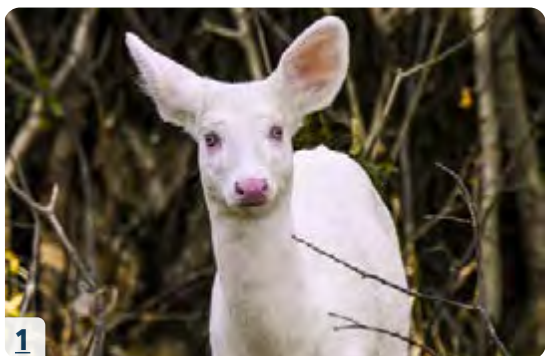
Barry
Orscheln

The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.



Want to see your photos in the Missouri Conservationist?

Share your photos on Flickr at
[flickr.com/groups/mdcreaderphotos-2023](https://www.flickr.com/groups/mdcreaderphotos-2023)
or email Readerphoto@mdc.mo.gov.

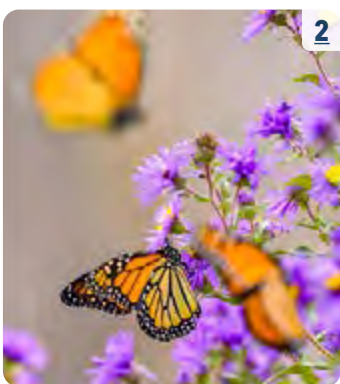


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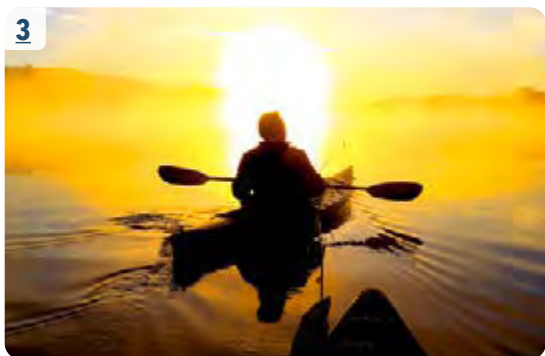
1 | Albino deer
by **Pamela Rethy**,
via Flickr

2 | Monarchs
on aster by
Steve Ricketts,
via Flickr

3 | Fall floating
by **John Sawhil**,
via email



2



3



Want another chance to see your photos in the magazine?

➔ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.

TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✖ I recently was reminded that seeing nature through another's eyes provides such richness to our own love story with the outdoors. On a recent glorious fall day, I had the great privilege of joining some of MDC's fisheries experts on the Current River to evaluate brown trout populations. As we made our way down a stretch of blue-ribbon waters, I asked each what they saw when looking at the river. One noted the water's color and clarity, another the health and diversity of the riparian corridor, others noted both the beauty and mystery of the world below the water's surface. Same stretch of water and yet each saw something different and unique. And now I will forever see that river differently.

Several years back on a trip to Central America, I remember being stunned when our fabulous naturalist guide, who could identify nearly all the myriad of brilliant neotropical birds that made their way through his countryside, told us his dream was to see our magnificent northern cardinal. I came home from that trip with a new perspective on a bird I'd taken for far too ordinary. (See MDC's Noppadol Paothong's beautiful feature on blue jays on Page 16.)

As we head into the month of October, with the outdoor world aflutter with change, may we add to our account the perspective of others as they view the magnificence of the natural world, and may we be forever changed as a result.

Sara Parker Pauley

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Nature LAB

by Dianne Van Dien

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

LARGE-SCALE HABITAT MANAGEMENT

Landscape Health Index

✳ Over the past several years, MDC and partners have been working hard to improve key habitat areas called priority geographies. By including both public and private land, these areas can provide large tracts of continuous habitat, which plant and animal populations need to thrive. But how do biologists know if their efforts have been successful, especially at this large scale?

A measuring system that can integrate a wide variety of factors is needed — hence the creation of the landscape health index (LHI).

“It’s a data-driven measure of how ecosystems, habitats, and species respond to conservation actions,” says Tom Bonnot, U.S. Fish and Wildlife Service (USFWS) biologist and adjunct professor at the University of Missouri. Bonnot and MDC collaborated to develop the LHI.

The LHI uses field data on species abundance, habitat and water quality, ecosystem processes, and public support and participation. The data are first



MDC researchers survey a stream for small fish and other aquatic organisms. Species data is just one type of information that is used for the landscape health index to assess overall habitat health of an area.

The landscape health index provides a way to evaluate large-scale conservation efforts

standardized and then combined to create an overall landscape health score.

“Conservation managers are really good at assessing prescribed burn units and forest stands,” says MDC Habitat Management Coordinator Michael Bill. “But managing a variety of connected habitats at a 100,000-acre scale can be very challenging. The LHI helps us focus at a much larger scale to determine what we need to do to really move the needle.”

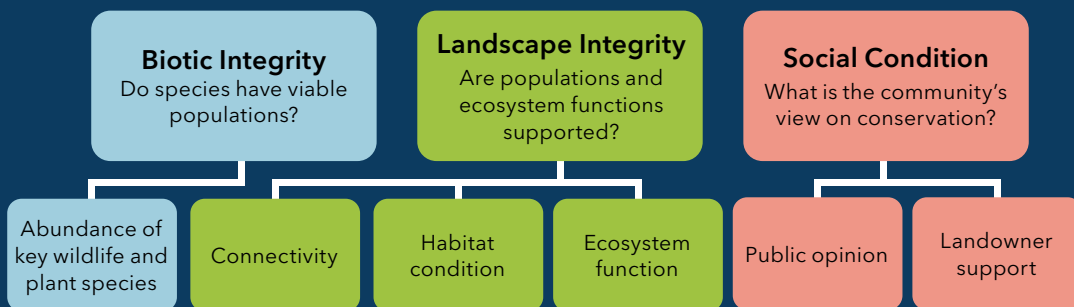
A pilot run of the LHI on two priority geographies shows it is almost ready to go. Bonnot says the USFWS co-funded the project because “it saw the need for this kind of landscape-level evaluation. Missouri was one of few states set up to do something like this. This is a pioneering effort by MDC that could be rolled out to other states.”



Landscape Health Index at a Glance

The LHI uses data from three main components to create an overall score on a scale of 0 to 1. The score helps managers assess conservation practices on priority geographies.

Partners:

MDC, USFWS,
University of Missouri



Sample LHI Score: 0  0.43  1

In Brief

News and updates from MDC



This bald cypress is showing its fall color. Order seedlings now from the George O. White State Nursery.

GO NATIVE!

BUY NATIVE TREE AND SHRUB SEEDLINGS FROM MDC'S GEORGE O. WHITE STATE NURSERY

➔ Need trees and shrubs for your landscape? Go native with tree and shrub seedlings from MDC's George O. White State Nursery. Native trees and shrubs can help improve wildlife habitat and soil and water conservation while also improving the appearance and value of private property.

The state nursery offers a variety of low-cost native tree and shrub seedlings for sale for reforestation, windbreaks, erosion

control, wildlife food and cover, and other purposes. The nursery provides mainly 1-year-old, bare-root seedlings with sizes varying by species. Seedling varieties include pine, bald cypress, cottonwood, black walnut, hickory, oak, pecan, persimmon, river birch, maple, willow, sycamore, blackberry, buttonbush, hazelnut, redbud, ninebark, elderberry, sumac, wild plum, witch-hazel, and others. MDC recommends ordering early for the best selection.

Seedlings are available in bundles of 10 or increments of 25 per species. Prices range from 34 cents to \$1 per seedling. Sales tax will be added to orders unless tax exempt. There is a shipping fee and a \$9 handling charge for each order. Orders will be shipped or can be picked up at the nursery, located near Licking, from February through May.

Orders can be placed through April 15, 2024. Place orders online at short.mdc.mo.gov/ZNZ.

MDC's 2023-2024 Seedling Order Form was in the September issue of the *Missouri Conservationist*. You can also get it at MDC regional offices and nature centers, or by contacting the State Forest Nursery at 573-674-3229 or StateForestNursery@mdc.mo.gov.



CHANGES FOR THE UPCOMING DEER SEASON

Regulation changes for the upcoming 2023–2024 deer hunting season include a new firearms early antlerless portion, a new firearms CWD portion, changes to firearms antlerless permit numbers, and the addition of 14 new counties to the CWD Management Zone.

MDC will offer a new firearms early antlerless portion Oct. 6–8 in the 100 counties open for the firearms late antlerless portion Dec. 2–10. Reynolds County will now be open during the antlerless portions.

MDC will offer a CWD portion of firearms deer season Nov. 22–26 in CWD Management Zone counties during the 2023–2024 deer season. Hunters will be able to use any unfilled firearms deer hunting permits during the CWD portion and must abide by the statewide limit of one antlered deer during the firearms deer season, all portions combined. Hunters must also abide by county-specific firearms antlerless permit numbers.

MDC has also increased the number of firearms antlerless permits hunters can fill in most counties, including allowing hunters to fill a firearms antlerless permit in Butler, Carter, Scott, and Wayne counties. Hunters in Bollinger County will be able to fill two firearms antlerless permits beginning this year. Qualifying landowners in Reynolds County may now receive two Resident Landowner Firearms Antlerless Deer Hunting Permits. MDC has also increased the number of firearms antlerless permits from two to four in 85 counties.

MDC has included 14 new counties as part of the CWD Management Zone this year: Bollinger, Caldwell, Carroll, Clay, Clinton, Dallas, Grundy, Jasper, Livingston, Madison, Montgomery, Pemiscot, Ray, and Schuyler. As with all counties in the CWD Management Zone, grain, salt products, minerals, and other consumable products used to attract deer are prohibited year-round. Hunters must also follow carcass transportation regulations. The antler-point restriction has also been removed from Caldwell, Carroll, Clinton, Grundy, Livingston, Montgomery, Ray, and Schuyler counties. Hunters who harvest deer in select CWD Management Zone counties during Nov. 11–12 must take the deer (or its head) on the day of harvest to a mandatory CWD sampling station.

Get more information on regulation changes and other details for deer hunting from our *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet, available where permits are sold and online at short.mdc.mo.gov/ZvC.

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov
or call 573-522-4115, ext. 3848.

Q: What are the differences between gooseberry and prickly gooseberry?

➔ Missouri is home to two types of fruit-bearing gooseberry shrubs — prickly gooseberry (*Ribes cynosbati*) and Missouri gooseberry (*Ribes missouriense*). Prickly gooseberry sometimes goes by the name “dogberry” and Missouri gooseberry is sometimes called “wild gooseberry.” Both are in the currant family.

The primary difference is the prevalence of spines. As you can easily deduce, prickly gooseberry has far more sharp barbs on its flowers, leaves, stems, twigs, trunks, and fruits. It is much easier to tell the difference between prickly gooseberry and our more common Missouri gooseberry by looking at the fruit — prickly gooseberry has barbs on the fruit whereas Missouri gooseberry does not.

Despite their sharp barbs, prickly gooseberry fruits are eaten by several bird species, squirrels, and chipmunks. Missouri gooseberry fruits are commonly gathered for pies and jellies.

For more information on Missouri gooseberry, visit short.mdc.mo.gov/4sy. For more information on prickly gooseberry, visit short.mdc.mo.gov/4sF.



Western pygmy rattlesnake

Q: What kind of snake is this?

➔ This is a western pygmy rattlesnake, one of the smallest species of rattlesnake in North America. This mostly gray snake usually has 20 to 30 dorsal blotches, an orange-brown dorsal stripe, and a slender tail with a tiny rattle.

This species lives or inhabits southern Missouri — specifically the Missouri Ozarks, the St. Francois Mountains, and the Arkansas border. Its preferred habitat is south-facing, rocky, and partially wooded hillsides. During the late spring and early summer, this snake will bask in rocky, open areas, near brush piles or along roadsides near forests and glades. During the heat of summer, it tends to be nocturnal. By mid-October, this species seeks out sheltered sites for overwintering.

It prefers to eat lizards, skinks, small snakes, mice, and occasionally small frogs and insects.



Prickly gooseberry

Missouri gooseberry



British soldier lichen

Very few individuals have been bitten by this venomous species, which is rarely encountered by humans. Even though it is small and rarely bites people, its venom is toxic. They should be respected and left alone.

Q: What can you tell us about red lichen color? I took this picture at Johnson Shut-Ins, but I had never seen it before?

➔ This is a type of *Cladonia* lichen referred to as "British soldier." *Cladonia* is a genus found in Missouri that includes cup lichen, reindeer moss, and British soldiers. British soldiers are a species of lichen with

erect hollow branches that end in the red fruiting bodies that look like red hats — hence their name — which are part of the lichen's reproductive cycle. Standing up to an inch tall, they are greener and redder in early spring and can be found on the ground or on dead wood.

Unlike most animals and leafy plants, lichens are a fusion of two unrelated organisms. Every lichen is a combination of a dominant fungus and algae or algae-like bacteria, sometimes all three, living together in a symbiotic relationship for nutrient intake and growth.

For more information, visit short.mdc.mo.gov/4st.



Corporal Michael Collins

STODDARD COUNTY
CONSERVATION AGENT

offers this month's

AGENT ADVICE

Early youth firearms deer season is Oct. 28–29. It's a great time to get youth in the woods and start, or continue, a yearly tradition. Take time before the season for target practice. The more familiar the youth is with the firearm, the more comfortable he or she will be in the woods. On the day of the hunt, wear the required hunter-orange hat and vest. It will heighten safety — making you easier to spot in the woods. October weather can be unpredictable, so be prepared with plenty of clothes and other ways to keep warm. Kids are more likely to continue the tradition if they stay comfortable and warm. For more information, including harvest regulations and permits, visit short.mdc.mo.gov/ZVo.

What IS it?

Can you
guess this
month's
natural
wonder?

*The answer is on
Page 8.*



INVASIVE SPECIES

MISSOURI'S LEAST WANTED

Invasive nonnative species destroy habitat and compete with native plants and animals. Please do what you can to control invasive species when you landscape, farm, hunt, fish, camp, or explore nature.

Dumped Live Bait and Aquarium Species

by Angela Sokolowski

Although perhaps well-intended, live bait — including minnows, worms, and crayfish — or aquarium species — including fish, snails, and plants — should never be dumped in a waterway.

Why It's Bad

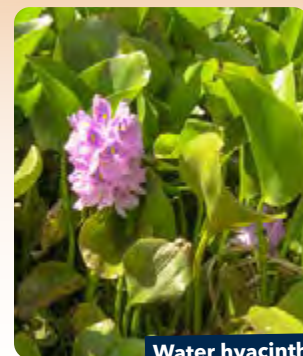
Once dumped, the live bait or aquarium species can become invasive in our lakes and streams.

How to Control It

It is illegal to dump aquatic species into waterbodies from which they were not obtained. Dispose of bait in the trash or give it to another angler. Unwanted aquarium species should be frozen in plastic bags and placed in the trash or poured down a drain leading to a water treatment facility.



Goldfish



Water hyacinth



Rusty crayfish

WHAT IS IT?

PERSIMMON FRUIT

Persimmons are medium-sized trees, bearing fruit from September through October. The fruits — orange to orange-purple, globe-shaped, and about $\frac{3}{4}$ -1½ inches long and wide — are sweet and edible when ripe. These edible fruit have been enjoyed for generations — from Native Americans to explorers and settlers. Persimmon fruits are also important to wildlife. Many birds — as well as deer, opossum, squirrels, bobwhites, raccoons, wild turkey, coyotes, and red and gray foxes — eat the fruits.



CWD

Info to Know for the 2023–2024 Deer Season

Chronic wasting disease (CWD) is a deadly, infectious disease in deer and other members of the deer family (cervids) that eventually kills all animals it infects.

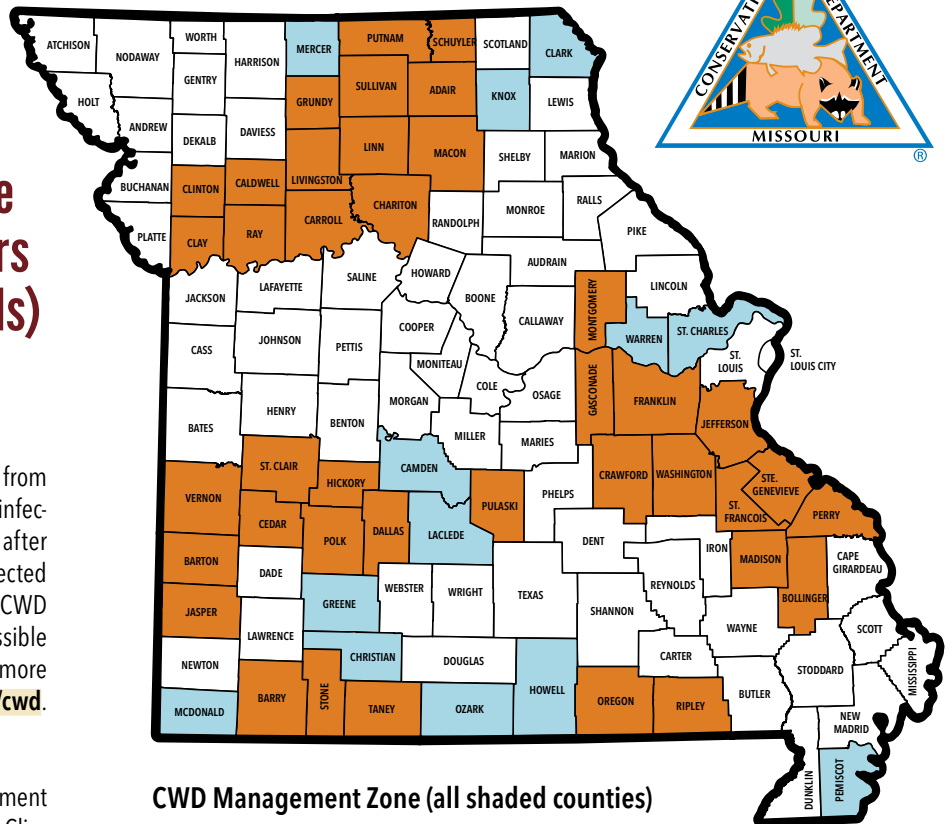
There is no vaccine or cure. CWD is spread directly from deer to deer and indirectly when deer encounter infectious prion proteins (which cause the disease) after they have entered the environment from an infected deer. MDC continues efforts to limit the spread of CWD in Missouri by finding new cases as early as possible and managing the disease to slow its spread to more deer in more areas. Learn more at mdc.mo.gov/cwd.

CWD Management Zone

Fourteen counties are new to the CWD Management Zone this year: Bollinger, Caldwell, Carroll, Clay, Clinton, Dallas, Grundy, Jasper, Livingston, Madison, Montgomery, Pemiscot, Ray, and Schuyler. Grain, salt products, minerals, and other consumable products used to attract deer are prohibited year-round within the CWD Management Zone. For exceptions, see the *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet at short.mdc.mo.gov/ZXv.

Mandatory CWD Sampling Nov. 11 and 12

Hunters who harvest a deer in designated CWD Management Zone counties during Nov. 11–12 must take their deer, or the head, on the day of harvest to one of MDC's CWD mandatory sampling stations located in the zone. Hunters must follow carcass movement restrictions (see *Carcass Movement Restrictions*). Sampling and test results are free (see *CWD Test Results*). Find sampling locations online at mdc.mo.gov/cwd or from MDC's *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet.



CWD Management Zone (all shaded counties)

- In these counties, if you harvest a deer during Nov. 11–12, 2023, you must take it, or the head, on the day of harvest to a mandatory CWD sampling station.
- CWD sampling is not mandatory in these counties.

Voluntary CWD Sampling All Season Statewide

MDC will again offer statewide voluntary CWD testing of harvested deer free of charge during the entire deer season at select locations throughout the state. Find locations and more information online at mdc.mo.gov/cwd or by contacting an MDC regional office.

CWD Test Results

Test results for CWD-sampled deer are free and will be available within four weeks after the sampling date. Get test results online at mdc.mo.gov/CWDTestResults.

CWD Portion of Firearms Deer Season

To allow more hunting opportunity to help slow the spread of CWD, a new CWD portion of firearms deer season (Nov. 22–26) will be open in CWD Management Zone counties. For permits, limits, and other details, see MDC's *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet.

Carcass Movement Restrictions

These regulations, included in the *Wildlife Code of Missouri*, are part of MDC's ongoing efforts to slow the spread of CWD.

For hunters who harvest deer in Missouri from a CWD Management Zone county:

- Deer must be Telechecked before any parts of the carcass may be transported out of the county of harvest.
 - Whole carcasses of deer (and parts that include the brain or spinal column) may not be transported out of the county of harvest, except that:
 - ▶ Deer carcasses may be delivered to a licensed meat processor within 48 hours of leaving the county of harvest.
 - ▶ Deer heads may be delivered to a licensed taxidermist within 48 hours of leaving the county of harvest.
 - ▶ Deer heads may be delivered to an MDC-approved CWD sampling location within 48 hours of leaving the county of harvest.
- Note:** During Nov. 11–12, hunters who harvest deer in designated CWD Management Zone counties must take the deer (or its head) on the day of harvest to a CWD mandatory sampling station.
- The following carcass parts may be transported outside of the county of harvest without restriction:
 - ▶ Meat that is cut and wrapped or that has been boned out
 - ▶ Quarters or other portions of meat with no part of the spinal column or head attached
 - ▶ Hides from which all excess tissue has been removed
 - ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
 - ▶ Finished taxidermy products

For hunters bringing deer and other cervids into Missouri from another state:

- Hunters may not transport whole cervid (deer, elk, moose, caribou) carcasses into the state.
- Heads from cervids with the cape attached and no more than 6 inches of neck attached may be brought into Missouri only if they are delivered to a licensed taxidermist within 48 hours of entering Missouri.
- The following cervid parts can be transported into Missouri without restriction:
 - ▶ Meat that is cut and wrapped or that has been boned out
 - ▶ Quarters or other portions of meat with no part of the spinal column or head attached
 - ▶ Hides from which all excess tissue has been removed
 - ▶ Antlers or antlers attached to skull plates or skulls cleaned of all muscle and brain tissue
 - ▶ Upper canine teeth
 - ▶ Finished taxidermy products

For taxidermists and meat processors:

- Taxidermists and meat processors throughout the state are required to dispose of deer, elk, and other cervid parts not returned to customers in a permitted sanitary landfill or transfer station. This requirement does not apply to hides from which all excess tissue has been removed.
- Proof of disposal must be retained for 12 months for meat processors and for three years for taxidermists.

Share the Harvest

Missouri's Share the Harvest program helps deer hunters donate venison to those in need. To participate, take harvested deer to an approved meat processor and let the processor know how much venison is to be donated. Deer harvested within the CWD Management Zone may only be donated to approved processors in the Share the Harvest CWD Testing Program. Deer harvested outside of the CWD Management Zone may be donated to any Share the Harvest processor. Learn more online at mdc.mo.gov/share or from MDC's *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet.

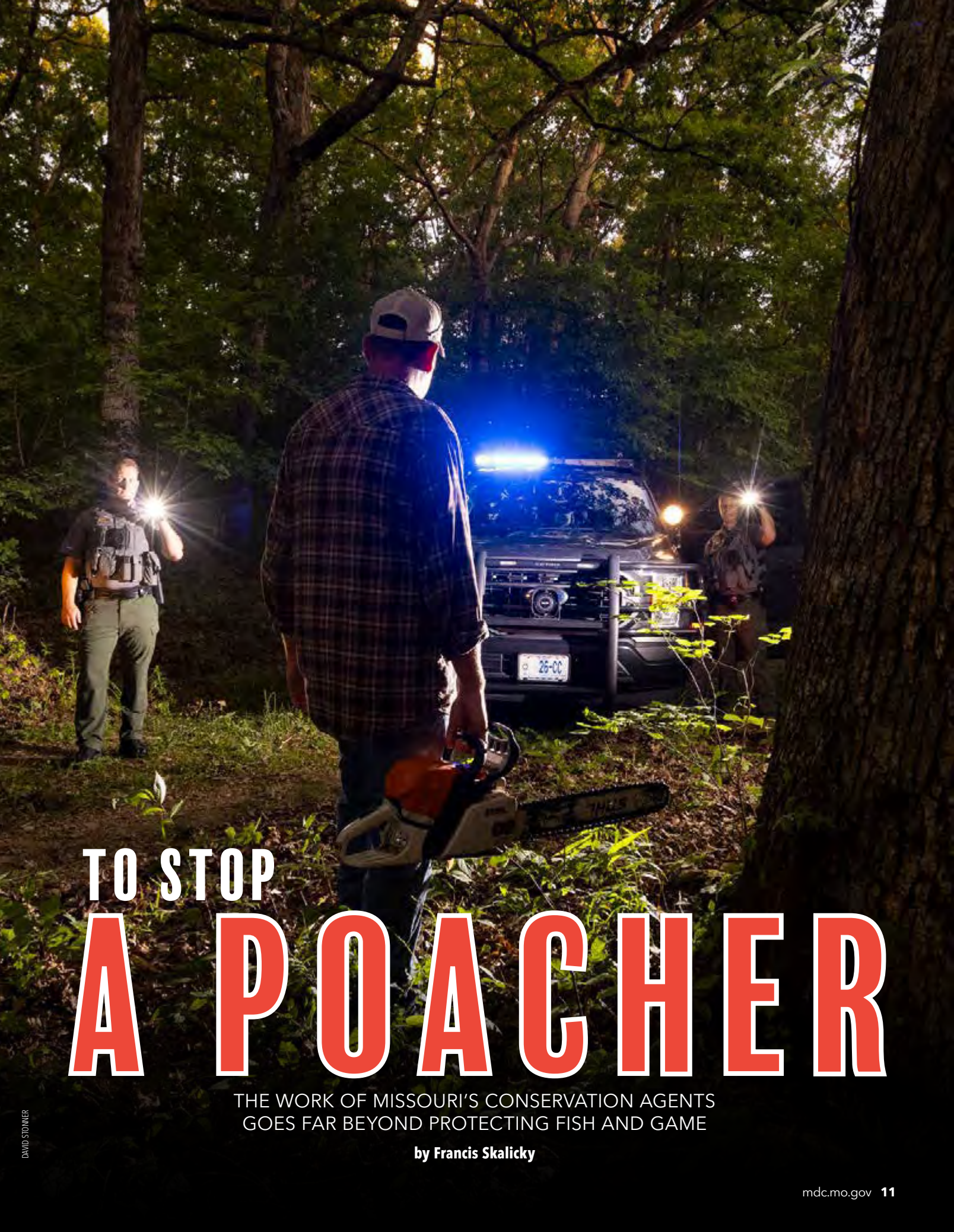
More Information

Get more information on CWD regulations and other CWD information online at mdc.mo.gov/cwd or from MDC's *2023 Fall Deer & Turkey Hunting Regulations and Information* booklet, available where permits are sold and online at short.mdc.mo.gov/ZXv.

Help Fight CWD!

CWD is one the greatest conservation challenges of our time and the most significant threat facing Missouri's deer population since the species almost disappeared from the state a century ago. MDC's goal is to slow the spread of CWD as much as possible to buy science time to develop better management tools and potentially a cure. Hunters and landowners are critical partners in the fight against CWD and can assist MDC by continuing to deer hunt, participating in CWD sampling, following regulations designed to slow the spread of CWD, and cooperating with targeted culling efforts.





TO STOP A POACHER

THE WORK OF MISSOURI'S CONSERVATION AGENTS
GOES FAR BEYOND PROTECTING FISH AND GAME

by Francis Skalicky

It wasn't the trees Candy Page looked at that made her meeting with a logger in June 2020 so memorable — it was the trees she didn't see.

Two trees to be specific. As Page and a logger drove across her Greene County property to discuss a potential timber sale, her eyes moved away from the mature trees that dotted the landscape and locked in on an opening created by two large walnut trees that were no longer there. On closer inspection, it was obvious they hadn't been missing for long.

"It looked like the trees had been cut only a few hours ago," she recalled. "The tops of the trees were very fresh, as were the tracks left by the thief in my hay field."

Page had been the victim of property damage and timber theft — the cutting and removal of trees from her property without her permission. In this instance, the two walnut trees had been cut down, branches had been trimmed, and the trunks had been hauled away by a lumber larcenist who hoped to make money from the sale of the logs to a sawmill.

Greene County Conservation Agent Cpl. Shannon Ohrenberg was called to the scene to investigate. She measured the diameter of the cut stumps, collected evidence, and talked to a local logger to alert them to be on the lookout for these logs.

BEYOND HUNTING AND FISHING

Timber theft is one of a multitude of natural resource-related crimes that are investigated by conservation agents. Although overseeing hunting and fishing laws may be the duties most often associated with MDC's Protection Branch, the detailed investigative work Ohrenberg and other conservation agents did in the ensuing months on Page's property after the crime was reported was clear evidence that protecting the state's fish, forest, and wildlife resources

This splintered stump was all that remained of a large walnut tree illegally removed from the property of Candy Page in 2020.

involves more than keeping an eye out for out-of-season hunters or anglers who don't have fishing permits.

"Conservation agents enforce provisions of Missouri's criminal code to keep the places where people enjoy nature safe and inviting and to assist landowners with protecting and managing wildlife habitat and forest resources on their property," said MDC Protection Branch Deputy Chief Travis McLain. "Assisting landowners with protecting their wildlife habitat and forestry resources primarily involves the enforcement of arson statutes related to wildland and forest fires, unlawful digging of protected plants such as ginseng, and damaging and/or stealing timber."

"Conservation agents enforce provisions of Missouri's criminal code to keep the places where people enjoy nature safe and inviting and to assist landowners with protecting and managing wildlife habitat and forest resources on their property."

— MDC Protection Branch Deputy Chief
Travis McLain





When timber theft occurs on someone's property, often all that remains are the tops of the trees and the stumps, neither of which have much value. Timber theft is covered under state statute, while digging certain plants – like ginseng or endangered or threatened species – is covered by the *Wildlife Code of Missouri* (inset). This code book contains the regulations that pertain to the legal oversight of the state's fish, forest, and wildlife resources.



Missouri's conservation agents are certified peace officers who have authority to enforce a wide range of state laws, but the cornerstone of MDC's Protection Branch is the *Wildlife Code of Missouri*. This set of conservation-oriented regulations is reviewed each year and approved annually by the Conservation Commission of Missouri. Though this set of conservation-oriented laws is online, its most-familiar version of the *Wildlife Code* is the pocket-size book (2023's edition is 254 pages) that hunters, anglers, and other outdoor enthusiasts have thumbed through religiously for decades. Contained in this code are a compilation of rules that pertain to the legal oversight of the state's fish, forest, and wildlife resources.

This code book includes legalistic terminology, but there's a reason the arm of MDC that's comprised of conservation agents is called the "Protection Branch" instead of the "Enforcement Branch" or some other title usually associated with the administration of laws. It's because the work of MDC's conservation agents — just like the agency's biologists, foresters, and other employees — is about stewardship of the state's outdoor resources.

"A key part of having sustainable natural resources is having laws in place protecting those resources."

— MDC Protection Chief Randy Doman

"In addition to enforcement, conservation agents use a variety of strategies to increase voluntary compliance with the rules, including education and community engagement," said MDC Protection Chief Randy Doman. "A key part of having

sustainable natural resources is having laws in place protecting those resources, and an understanding and appreciation for those laws, so present and future generations can enjoy them."

These legal protections apply to all the state's fish, forest, and wildlife resources — not just those that are part of hunting and fishing activities.

Thus, timber theft, illegal digging of plants, forest arson, and the illegal collection and trafficking of reptiles and amphibians are among the crimes conservation agents are called upon to investigate in addition to violations related to hunting and fishing.

"These types of violations have always been an issue for conservation agents in some form or another," McLain said. "The market and economy really dictates the frequency that these types of illegal activities occur. If the price of walnut logs are high, we are likely to see more damage and theft on both public and private lands than when the prices are low."



TIMBER AND PLANT THEFT

In the case of trees, it's not just about stealing trees that can be sawed up into boards.

"Any tree species that has an economic value can be poached," said Cpl. Brad Hadley, Shannon County conservation agent who has investigated a number of tree-theft and plant-poaching cases during his 24-year career. "This value doesn't necessarily imply board-feet of lumber, or what would commonly be called 'saw timber.' The trees that are valued for their lumber are oaks, hickory, walnut, cedar, etc. There are also trees that have economic value for their bark, for their roots, or for their leaves. Additionally, some trees and shrubs are used to make furniture and interior decorations."

Regardless of what type of tree is stolen off the land, the damage felt by the landowner goes beyond an assessed monetary value.

"The ecological damage from over-harvesting is significant and long-term."

— MDC State Botanist Malissa Briggler

"If anyone thinks that timber theft is no big deal or does not happen in our area, they are very wrong," Page said. "Wildlife poaching — which I have been a victim of — is the taking of something that is renewed annually. This is unfortunate and definitely needs prosecution, but it is not the same as the theft of mature trees that have taken many decades to grow and are a valuable asset to the property and may also be a source of income."

Illegal harvest of plants for their purported medicinal value is another problem Missouri's conservation agents sometimes investigate. Ginseng is the only plant in Missouri that has a regulated harvest. The state's ginseng "season" is from Sept. 1–Dec. 31. Outside of those dates, all digging of ginseng is illegal.

Other plants alleged to have healing qualities are sometimes legally collected with the landowner's permission, but other times unauthorized collection of these plants occurs. MDC State Botanist Malissa Briggler said the habitat losses caused by the collection of these plants for commercial purposes — whether it's done legally or illegally — often far outweighs any financial gains.

"There really isn't a lot of money to be made in plant collecting," said Briggler. "Getting financial returns from many botanicals involve digging the plant up for its roots and the price it brings is hardly worth the effort unless a large amount is taken. This large-scale harvest results in an area being depleted. The ecological damage from over-harvesting is significant and long-term."

Top: Some tree species are targeted for their bark or leaves. This slippery elm tree was harvested for its inner bark, which has long been utilized for its medicinal purposes, primarily to relieve inflammatory bowel conditions and to protect against ulcers.

Bottom: Timber and plant thieves often operate under cover of darkness in an effort to avoid detection by landowners and conservation agents.



DETECTIVE WORK

Investigating plant and timber thefts may involve a different set of questions than fish and game violations, but Hadley said the strategies are the same.

"It's really just good old-fashioned detective work," he said. "That means talking to surrounding landowners or neighbors that may have seen part or all of the crime being committed or witnessed unknown vehicles or people in the area. In the case of timber theft, we will also talk to area sawmills to seek their cooperation."

This investigative legwork could lead to multiple prosecutions. For example, one incident could involve trespassing, property damage, and stealing.

As is the case with all other branches of MDC, citizen cooperation is vital to the success of a conservation agent's regulatory efforts.

"The role of law-abiding citizens to catch poachers is very important," McLain said. "Conservation agents can't be everywhere at once and, thus, they rely heavily on reports from the public to catch poachers. The best thing that law-abiding citizens can do to help catch poachers is to be good witnesses and report suspected illegal activity in a timely manner. Record license plate numbers, vehicle descriptions, personal descriptions, and even snap a picture if it can be done safely. Then contact a conservation agent or other law enforcement agency immediately."

Page agreed.

"We (landowners) need to help each other watch for this type of crime," she said. "If you see someone in your area hauling a few logs on a trailer, check with your neighbors, try to get a description, and license number. Share camera footage if you have it. If you see or hear someone on your neighbor's property, say something. Help each other."

"I would recommend that if you discover timber stolen from your property, that you report it to your local conservation agent," she added. "You never know, they could be working on a related case. The more pieces of the puzzle they have to work with, the better."

McLain said the value of the assistance Missouri's law-abiding citizens provide to conservation agents cannot be overstated.

"It would be impossible to manage Missouri's fish, forest, and wildlife resources without support and cooperation from private landowners," McLain said. "Everyone benefits when we work together on both public and private lands to protect and conserve these resources." ▲

Francis Skalicky has been the media specialist for MDC's Southwest Region since Jan. 1, 1996. He lives in Springfield and enjoys the outdoors with his family as often as possible.



The majority of plant and timber thefts investigated by conservation agents are felonies that can carry significant consequences. Persons found in violation are often arrested, and if convicted could face fines up to \$10,000 and/or imprisonment in a state correctional center.





BLUE BEAUTY

A blue jay perches in a tree, searching for food.

400mm lens • f/5.6 • 1/320 sec

Blue JAYS

A MAGNIFICENT BIRD TO WATCH

by Noppadol Paothong

Blue jays are among the most recognizable backyard birds in Missouri. Whether you're an experienced birdwatcher or just interested in these beautiful songbirds that are frequent visitors to your backyard or at the edge of a forest, they are fun to watch.

These intelligent birds like to chatter a lot — their sounds range from lovely chirps in the morning to loud and obnoxious squawks. They frequently mimic the calls of hawks, especially the red-shouldered hawk. These calls may provide information to other jays that a hawk is around or may be used to deceive other species into believing a hawk is present.

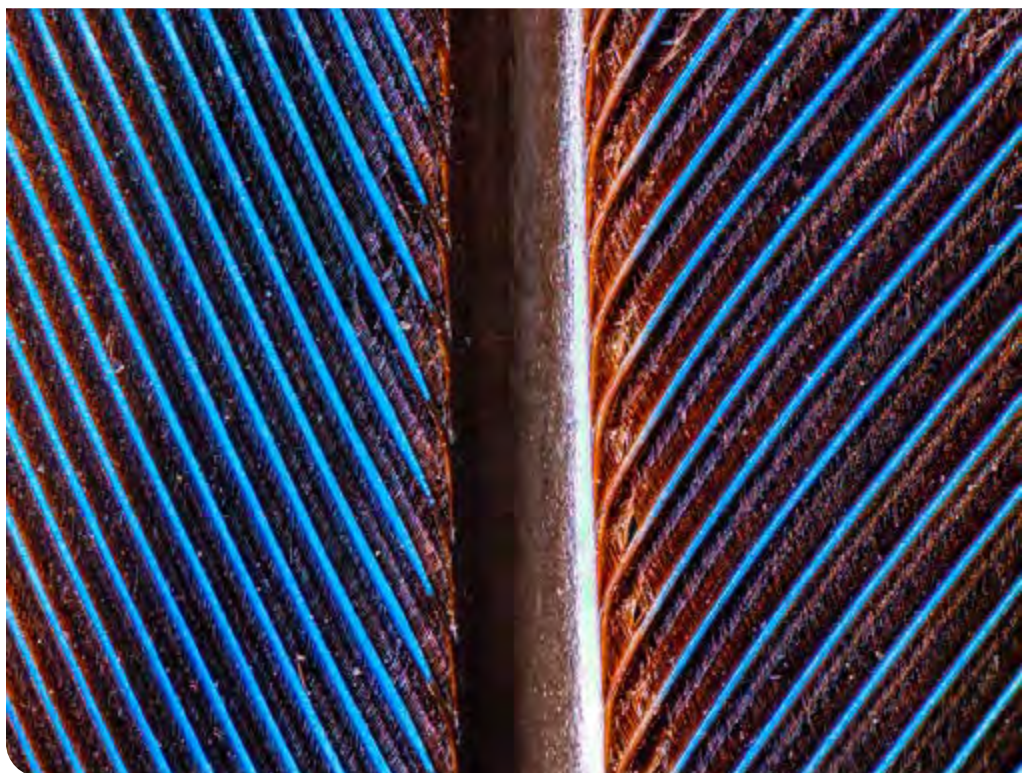
There are eight species of jays in North America; however, blue jays are the only jays in much of the eastern United States. Although they are much prettier looking, blue jays are closely related to the crow. They are identifiable by the crest on their heads and their blue, white, and black plumage. The dark pigment in their feathers is melanin. A trick of the light causes the blue color in their feathers. Scattering light through modified cells on their feather barbs' surface makes their feathers appear to be blue.

Blue jays are known for their intelligence and complex social systems and have tight family bonds. They often mate for life and remain with their social mate throughout the year. Only the female incubates — her mate provides all her food during incubation.

The mating season typically takes place from mid-March to July. Once a female chooses her mate, they typically stay together for life in a monogamous relationship. Both male and female work together to build a nest for their young, and then when the female is sitting on her eggs, the male will feed and take care of her. Once the young are about 17 to 21 days old, the whole family will then leave the nest together.

Blue jays have a characteristic called sexual monomorphism, meaning the males and females look the same. With male and female blue jays having similar plumage, it's difficult to tell them apart. However, male blue jays are slightly larger.

On average, blue jays live about five to seven years, but the oldest known blue jay lived for at least 26 years and 11 months.





(Clockwise from top left)

A FAMILY AFFAIR

An adult and a juvenile blue jay remain together after leaving the nest.

400mm lens • f/5.6 • 1/500 sec

THIRSTY BIRD

A stream offers an ideal watering hole for a blue jay.

600mm lens • f/5.6 • 1/100 sec

WINTER CONTRAST

Vibrant blue jay feathers show out against a snowy backdrop.

600mm lens • f/5.6 • 1/250 sec

BARBS OF A FEATHER

The barbs of this bird's feather flaunt blue together.

65mm lens • f/5.0 • 1/125 sec

Blue jays are known to take and eat eggs and nestlings of other birds, but it isn't common. In some studies of blue jay feeding habits, only 1 percent of jays had evidence of eggs or birds in their stomachs. They are not the carnivorous bird predators that they are made out to be. Birds' eggs and baby birds are far from their favorite meal. Most of their diet was composed of insects, nuts, and mostly acorns.

Speaking of acorns, blue jays are acorn specialists. Typically living on the edge of forests, they enjoy acorns tremendously. A small hook at the pointed end of a jay's beak is designed to open an acorn's husk. Blue jays are one of the most ecologically important species for a forested environment due to their acorn-loving sweet tooth. Because blue jays routinely carry acorns for winter storage for a long distance, a single jay can gather and bury up to 4,500 acorns each fall, but it remembers where only a quarter of them are buried before springtime. So, each jay plants somewhere around 3,000 or more oak trees every year! By dispersing acorns further away from parent trees, blue jays provide oaks with enormous ecological service, where there will be less competition for light, nutrients, and water.

Blue jays are an incredibly interesting type of bird. From their intelligence, the way they bond with family, to the way they use their voices to communicate, they are a magnificent bird to watch. ▲

Noppadol Paothong has worked as a staff photographer with the Missouri Department of Conservation since 2006, focusing on rare and endangered species. He also is an Associate Fellow with the International League of Conservation Photographers (iLCP). He hopes his images will help people connect with nature and the conservation issues for which he deeply cares.





(Clockwise from top left)

AN UNCOMMON ENTREE

Though rare, this blue jay nabs a house sparrow for dinner.

400mm lens • f/5.6 • 1/400 sec

SIMPLE SNACKERS

A jay's diet primarily consists of insects, nuts, and acorns.

400mm lens • f/8 • 1/800 sec

FLOOFY FEATHERS

Birds fluff their feathers to regulate body temperature and maintain winter warmth.

600mm lens • f/8 • 1/320 sec

ACORN BREAKER

The small hook at the top end of a blue jay's beak is a helpful dinnertime tool.

400mm lens • f/5.6 • 1/800 sec



An aerial photograph of a dense forest. The canopy is a mix of vibrant green and brownish-yellow, suggesting some trees are dead or dormant. The perspective is from directly above, looking down on the treetops.

Oak Dec

PHOTOGRAPH BY
DAVID STONNER

An aerial photograph of a forest. The majority of the trees are green, but there are significant patches of brown, indicating dead or dying trees. The word 'cline' is overlaid in a large, brown, stylized font with a white outline.

cline

DROUGHT, INSECTS, FUNGI CONTRIBUTE TO LOSS IN OAK FORESTS

by Dan Dey and Robbie Doerhoff

While walking his 100-acre property of oak forest in Dent County on a fine July morning,

Dan Dey saw several large, dead black and scarlet oak trees. He hadn't noticed them before and thought it was unusual because it was more than one dead tree here and there, and they were large dominant trees. Later that week, while driving down Highway 19 south of Salem, he caught a view looking out over a valley and was struck by the number of reddish-brown tree crowns scattered across the hillside. Also visible were the gray ghost crowns of trees that have been dead for a few years. Clearly, this issue has been happening for a while.

Having spent his career working with Missouri's forests, he knew exactly what he was looking at — oak decline. Oak decline is a natural process that affects primarily black, southern red, and scarlet oaks (species in the red oak group), and trees that are older than 70 years.

Oak Decline

Oak decline is a natural cause of death in oak trees. It is caused by a combination of environmental stress, infection by fungal diseases, and insect attacks on trees. Often it is the older, dominant trees that are most susceptible. Early signs of oak decline include reduced diameter growth, crown dieback starting from the branch tips, dead large branches in the upper crown, chlorotic and dwarfed foliage, and foliage that displays early autumn leaf color. Recently killed trees may show Armillaria — or honey fungus — mushrooms around the base of the tree in the autumn after cooler temperatures and fall rains. Trees infested with bark beetles and wood boring beetles will have exit holes on the main stem where adults emerge after they spend time feeding on the tree's cambium and wood as larvae. Affected trees usually die in two to five years.

Oak decline in Missouri became an increasingly noticeable cause of widespread forest mortality beginning in the 1970s when much of the Ozark forests were becoming mature following their



Oak decline causes the eventual death of oak trees. Older, mature oaks are most affected and they are often the dominant trees in Ozark forests.

recovery from the extensive lumbering and wildland fire era of the early 20th century. The last extensive oak decline event in the Missouri and Arkansas Ozark Highlands occurred from 1999 to 2003, killing over half of the red oak trees in forests over millions of acres. Oak decline can occur in any forest stand in any year, but large-scale mortality usually follows severe droughts and is most noticeable in forests dominated by red oak species.

Drought

Drought is the number one inciting factor setting the stage for oak decline in red oaks. Drought can kill trees outright, but short of that, it stresses trees and other plants, reducing their growth, vigor, and ability to fight off disease and insect attacks. Unfortunately, it can take trees a few years to recover their health and vigor after a severe drought period, or that drought can be what pushes an aging tree into decline.

Moderate to severe drought can occur in Missouri any year and last for weeks or months. It often occurs in the summer but can happen in any season. Severe, multi-year droughts occur in Missouri about every 20 years. Severe drought struck Missouri in the 1910s and in the Dust Bowl years of the 1930s. Severe droughts hit again in the 1950s when the worst multi-year consecutive drought on record occurred from 1952–1956. The 1980s and late 1990s also brought extended drought periods. The worst drought in recent memory occurred in 2012–2013, an event that ended up in the record books and killed many trees in the following years. Less severe droughts have occurred since 2013, with each of the last three years showing significant drought in portions of the state. When looking at the long-term picture, it's clear that our trees have been through a lot of climate and weather issues during their lives.



The initial logging of shortleaf pines in the latter 19th and early 20th centuries and frequent wildfires promoted the regeneration of red oaks. Managing for the return of shortleaf pine on these sites is one way to combat oak decline.



Rapid White Oak Mortality

White oak (*Quercus alba*) is one of Missouri's most economically and ecologically valuable tree species. So, when white oaks started dying in 2011, private landowners and public land managers were very concerned. During the record-setting drought of 2012, tens of thousands of white oaks died in a few months, prompting researchers to name the issue rapid white oak mortality (RWOM) to help distinguish it from traditional oak decline. White oaks have continued dying in the years since 2012, but at a much lower rate.

In 2014, researchers at the University of Missouri partnered with MDC, the USDA Forest Service, and the L-A-D Foundation to determine the reasons for RWOM. The study found that trees affected by RWOM are those growing on lower slopes or along drainages where water runs after heavy rains. RWOM often occurs in pockets a few acres in size and on sites considered good for white oak growth. Tree ring data from research sites suggest that tree age may not be a factor in RWOM, but white oaks 10–18 inches in diameter (measured 4.5 feet from the ground) are most often affected. Insects and fungal diseases found in most oak decline areas were also found in RWOM locations, with an additional root-rotting pathogen not native to the U.S., *Phytophthora cinnamomi*, also found at some sites.

After several years of research, the findings were unclear as to what officially caused RWOM, leading researchers to surmise a combination of weather patterns, tree stress, and secondary pest and pathogen issues worked together to kill white oaks. As Missouri's climate continues to change in the coming decades, it is possible that RWOM could happen again, particularly in areas that have been hit by late spring frosts and outbreaks of jumping oak gall.

For more information on:

- Oak decline, visit short.mdc.mo.gov/4mD.
- Hypoxylon canker, visit short.mdc.mo.gov/4mz.
- Armillaria root rot, visit short.mdc.mo.gov/4mK.
- Local MDC foresters, visit short.mdc.mo.gov/4mr.

Fungi and Insects

Oak decline sets the stage for several native fungi and insects to attack trees. For the most part, these species are opportunistic and take advantage of physiologically stressed trees. They are generally unable to successfully attack or kill healthy trees. While we may not like the idea of our trees being attacked by insects and fungi, it's important to remember that these species are all part of nature and important in creating snags and wildlife habitat, decomposing wood, and recycling nutrients and organic matter back into the soil and through the ecosystem.

The two major fungal diseases in oak decline are Armillaria root rot and Hypoxylon (*Biscogniauxia*) canker. Armillaria fungi inhabit the soils and are ever ready to infect stressed tree roots. Hypoxylon is a weak fungus that is present within most trees throughout their lives, ready to take over a tree's vascular system once it becomes drought stressed. Working in concert, Armillaria reduces the ability of the tree to take up water and nutrients from the soil while Hypoxylon stops the transport of them throughout the tree. Outbreaks of both diseases follow severe drought. Good health and high vigor are important conditions needed for oak trees to defend against infection by either Armillaria root rot or Hypoxylon canker.

Wood-boring insects are a secondary factor in oak decline. Adults lay eggs on or under the bark of a stressed tree. Larvae hatch from the eggs and tunnel into the tree, feeding on the tree's vascular tissues or heartwood as they develop into adulthood. This disrupts the supply of water and nutrients from the roots to the above ground portions of the tree and reduces tree health and vigor. The two-lined chestnut borer, red oak borer, and carpenterworm, as well as many species of bark and ambrosia beetles, all commonly attack declining oak trees, helping to kill trees.

Battling Oak Decline

Droughts will continue to occur in Missouri, and Armillaria root rot,



Armillaria



Red oak borer



Two-lined chestnut borer

Armillaria is a native fungal disease that lives in the soil where it feeds on tree roots. Red oak species are particularly susceptible to Armillaria. When oak trees die, Armillaria consumes the root system and surfaces in the fall at the base of the tree producing the characteristic honey mushrooms. Several wood borers attack oak trees and their larvae feed on the cambium and wood disrupting water and nutrient flow in trees. Oaks stressed by drought are prime targets for fungi and insects.

Hypoxylon canker, and wood-boring insects are endemic to oak forests, which means that oak decline will occur again. A good general rule to follow in forest management is to maintain high tree vigor and good health to minimize loss of growth and life to extreme weather and forest pests. One way to do this in oak forests is to thin the forest through harvesting to reduce tree density and competition for water and nutrients. The more susceptible red oak trees can be removed in the thinning if they are marketable, especially if they are approaching 80 to 90 years of age. Reducing tree density promotes the health and vigor of the remaining trees.

Thinning is also important in restoring oak and pine woodlands and savannas. These natural communities were once common throughout Missouri but are relatively rare today. They are more open, less dense forests dominated by white oak, post oak, chinkapin oak, bur oak, or shortleaf pine that are more resilient to drought and oak decline. Woodlands and savannas also add tremendous diversity in ground flora and fauna and wildlife habitat across the landscape.

Regardless of the management goal in thinning a forest, care should be taken in the logging operations to protect the remaining trees by avoiding damage to crowns during tree felling and to tree trunks and roots during log skidding. Injured trees are more susceptible to insect and disease attacks and are less able to survive a drought.

An older oak forest can be regenerated to produce vigorous new growth and ensure the sustainability of oak into the future. Regenerating forests diversifies forest conditions across the landscape by increasing the proportion of young forests in a landscape dominated by mature forests. It is also an opportunity to increase tree species diversity or change the composition of trees in the forest, for example, from red oak dominated compositions to a more diverse mix of white oak group species and shortleaf pine. High forest diversity in age, size structure, and composition is good to buffer against things that threaten tree health and life. Highly diverse forest landscapes are more resilient to natural, novel, or invasive disturbances (for example, wildfire, insects, and disease), environmental stress from extreme weather (drought, wind, or flooding), and climate change.

On favorable sites, promote the regeneration of shortleaf pine, species in the white oak group (white, bur, swamp white, chinkapin, and post oaks), and a diversity of native tree species to decrease the dominance of red oak species. Shortleaf pine and post oak are adapted to many sites in the Ozarks and less affected by oak decline that plagues the red oak species.

When Armillaria invades oak root systems, they weaken them and make them susceptible to blow down in wind storms. Timber harvesting can be used to increase vigor of the remaining trees, regenerate oak forests, or restore oak and pine woodlands.

Diverse Forest; Healthy Forest

Oak decline is a natural part of our Missouri forests. Invasive species of all types — insects, plants, and diseases — continue to increase and spread in our forests. The climate continues to bring novel weather. Changes in climate can make outbreaks of native and invasive species that attack trees worse. Landowners can minimize the negative effects of oak decline to their forests by managing for tree health and vigor, increasing diversity in tree composition and structure in their forests, and by increasing overall landscape diversity through forest regeneration or restoration of oak-pine woodlands and savannas. Professional foresters and scientists working with state or federal agencies, as consultant foresters or with conservation organizations, are available to talk about landowner options and opportunities in forest management. Don't be shy about reaching out to them. And if your neighbor is managing their forests in different ways, stop in and talk to them about it.

To learn more about oak decline in Missouri and ways you can improve your forest, visit short.mdc.mo.gov/4mD. ▲

Dan Dey is the assistant director of research for the U.S. Forest Service Northern Research Station in Columbia. He enjoys sharing the wonder of Missouri's natural heritage with his wife, Mavis, his six children, and 16 grandchildren.

Robbie Doerhoff is MDC's forest entomologist and has spent over a decade working on forest health issues in the state. When not diagnosing sick trees, she enjoys landscaping with native plants and spending time with her family outdoors.



Get Outside

in OCTOBER



Dark-eyed junco

→ Ways to connect with nature

Black walnuts



Go Birding!

October is a great time to go birding! The winter residents, like dark-eyed juncos from Canada, are arriving. Fall migrants like American wigeon, northern pintail, gadwall, and green-winged teal are at their peak. Greater scaup and other transients are also making their way through Missouri. Dust off those binoculars and get out there! For more information on birding, visit short.mdc.mo.gov/45U.

Fall is Getting Nutty

Missouri is the world's top producer of black walnuts, and they are ripe for the picking. These nuts are popular in baking and confections and can even be pickled whole. It's important to get to them before the squirrels. They enjoy black walnuts, too.

Pecans are also on the menu in October. These versatile nuts can be eaten by the handfuls but are also popular in cookies, candies, muffins, pancakes, quick breads, in coatings for fried fish or chicken, in poultry stuffing, and in or on ice cream. Wildlife, including raccoons and deer, enjoy them, too, so best to pick them early.

For recipe ideas, visit short.mdc.mo.gov/4mN.

VIRTUAL

Learning to Hunt: Deer Hunting

Thursday • Oct. 5 • 6-7:30 p.m.

Virtual event

Registration required. For more information, call 888-283-0364 or visit short.mdc.mo.gov/4mG.

Learn the basics of hunting white-tailed deer from experienced instructors. We will cover scouting, setup, taking the shot, and much more. Attend this class to increase your success in the field.

Natural Events to See This Month

Here's what's going on in the natural world.



Black bears enter hibernation.



Muskies are active.



Cardinal flower blooms.

SOUTHWEST REGION

Wetland Day

Saturday • Oct. 7 • 10 a.m.-2 p.m.

Schell-Osage Conservation Area

4662 South 2950 Road, Schell City, MO 64783

Registration not required. For more information, contact Chris Daniel, MDC district supervisor, at Chris.Daniel@mdc.mo.gov.

Celebrate wetlands and the outdoors when MDC hosts a free Wetland Day at Schell-Osage Conservation Area in Vernon County. Get updates on the wetland and Schell Lake renovation project, including poster layouts of the new lake, wetland pools, and the designs and locations for waterfowl blinds. See the new waterfowl refuge layout. Visitors can also go fishing in a recently stocked pond, learn about birding, try target archery, and other outdoor activities.

Sugar maple



Sweet gum



Flowering dogwood



White oak



The Big Show

Fall color peaks around mid-October for most of the state. Get out and look for these species:

- Sugar maples and sweet gums showcase a rainbow of colors on one tree – red, orange, yellow, and green.
- Missouri's official state tree, the flowering dogwood, sticks to reds and purples.
- White oaks add to the color palette with wine-red hues.

For more information on Missouri's fall color, visit short.mdc.mo.gov/ZVf.



Dekay's
brown snakes
cross trails and
roads.



Listen for
field and
house
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Places to Go

SOUTHEAST REGION

Apple Creek Conservation Area

Outdoor opportunity
on land and water

by Larry Archer

✳ **Whether as a destination** for land-based adventure or a launching point for a big-river expedition, Apple Creek Conservation Area (CA) in southeast Missouri offers visitors opportunities galore.

Located on just over 2,100 acres north of Cape Girardeau, Apple Creek CA consists of forests, woodlands, old fields, and wetlands. Combined with shooting and archery ranges, campsites, and trails, the area offers plenty for those wanting to enjoy the fall, said River Hills District Supervisor Kyle Lorenz.

“There’s a lot of trails and access roads to hike and look for forest and woodland birds and other wildlife,” Lorenz said.

The area’s 5 miles of multi-use trails, along with nearly 6 miles of improved and service roads, opens much of the area to hikers, bicyclists, and equestrians.

Even with the many options the area offers on site, it has another feature that can serve as a jump-off point for additional big-river adventures, Lorenz said.

“There is a boat ramp to Apple Creek on the area that, at high enough river levels, does get a fair amount of use from anglers accessing the Mississippi River,” he said.



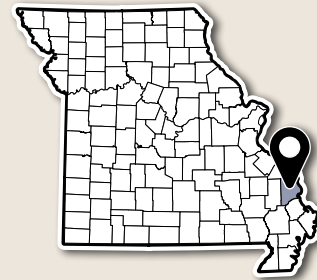
“It’s mostly wooded acres, large river hills, and timber, with scattered old fields and a few opportunistic wetlands.”

—River Hills District Supervisor
Kyle Lorenz

NORRADI PAOTHONG



When water levels are high enough, Apple Creek, which runs along the northern boundary of its namesake conservation area, offers visitors access to the Mississippi River. About 80 percent of the area is forested (inset).










APPLE CREEK CONSERVATION AREA

consists of 2,100.2 acres in Cape Girardeau County. From Cape Girardeau, take the Fruitland exit off I-55, then Highway 61 north 7 miles, then Route CC east 6 miles to the area.

37.5557, -89.5658

short.mdc.mo.gov/4s3 573-290-5730

WHAT TO DO WHEN YOU VISIT

-  **Archery** Unstaffed static archery range (10-, 20-, 30-, 40-yard targets).
-  **Birdwatching** Included in the National Audubon Society's Cape Hills Important Bird Area (short.mdc.mo.gov/4so). The eBird list of October birds recorded at Apple Creek CA is available at short.mdc.mo.gov/4sJ.
-  **Boating** Concrete ramp with access to Apple Creek.
-  **Camping** Two campgrounds with individual campsites; open camping.
-  **Fishing** Three stocked lakes, totaling 2 acres. Black bass, catfish, sunfish, white bass.
-  **Hunting Deer and turkey** Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw.
Also **bear, dove, rabbit, and squirrel**
-  **Shooting Range** Unstaffed rifle and pistol range (25-, 50-, 100-, 200-, and 275-yard targets); trap and skeet, patterning shotgun ranges.
-  **Trails** Multiuse (hike, bike, horse) trail totaling 5 miles. Improved and service roads totaling 5.8 miles (closed to bikes and horses during firearms deer and spring turkey seasons).
-  **Trapping** Special use permit required.

WHAT TO LOOK FOR WHEN YOU VISIT



Cooper's hawk



Yellow-bellied sapsucker



Marbled Orbweaver

Araneus marmoreus

Status
Common

Size
No more than ½ inch;
males are smaller

Distribution
Statewide

Missouri has several species of orb-weaving spiders in genus *Araneus*, two of which are common in Missouri – the marbled orbweaver and the openfield orbweaver. The marbled orbweaver is a colorful spider with a variable pattern that can be white, yellow, orange, tan, grayish, or even white, with mottling and spotting of black, brown, or purple. Females build their wheel-shaped webs among trees and tall weeds in moist woods, often near streams.



Did You Know?

These rather large spiders are common in open woods, brushy fields, in tall grassy areas, and around fenceposts and buildings. They are common on the eaves of houses and barns. They may build their webs wherever structures are present for support and where flying insects commonly pass through.

LIFE CYCLE

Eggs hatch in spring and the young spiderlings disperse and begin building webs, hunting, and growing. Males do not spin webs. Once mature, the males wander in search of a mate, while the females hang in webs eating and awaiting a mate. Once mated, the female keeps eating and creates egg cases. The first freeze usually kill all the adult spiders, with only the eggs overwintering.

FOODS

Webs are built at dusk and used for snaring prey during the night. Flying insects, such as moths and crane flies, are the preferred prey. Once caught in sticky strands of the web, they are bitten and trussed by the spider, and later eaten. At dawn, the spider reingests the strands and recycles the nutrients in making the next web.

HUMAN CONNECTIONS

The amazing web patterns have fascinated humans for generations. In fact, E. B. White wrote his classic *Charlotte's Web* about a spider in genus *Araneus*. Orbweavers control populations of flying insects, many of which are pests.

Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖

Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.



FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Keep:
May 27, 2023–Feb. 29, 2024

Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2023

Nongame Fish Giggling

Streams and impounded waters,
sunrise to midnight:

Sept. 15, 2023–Feb. 15, 2024

Paddlefish

On the Mississippi River:

Sept. 15–Dec. 15, 2023

Trout Parks

State trout parks are open seven days a week
March 1 through Oct. 31.

Catch-and-Keep:

March 1–Oct. 31, 2023

Catch-and-Release:

Nov. 10, 2023–Feb. 12, 2024

HUNTING

Black Bear*

Oct. 16–25, 2023

Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2023

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crows

Nov. 1, 2023–March 3, 2024

Deer

Archery:

Sept. 15–Nov. 10, 2023

Nov. 22, 2023–Jan. 15, 2024

Firearms:

- ▶ **New!** Early Antlerless Portion (open areas only): Oct. 6–8, 2023
- ▶ Early Youth Portion (ages 6–15): Oct. 28–29, 2023
- ▶ November Portion: Nov. 11–21, 2023
- ▶ **New!** CWD Portion (open areas only): Nov. 22–26, 2023
- ▶ Late Youth Portion (ages 6–15): Nov. 24–26, 2023
- ▶ Late Antlerless Portion (open areas only): Dec. 2–10, 2023
- ▶ Alternative Methods Portion: Dec. 23, 2023–Jan. 2, 2024

Doves

Sept. 1–Nov. 29, 2023

Elk*

Archery:

Oct. 21–29, 2023

Firearms:

Dec. 9–17, 2023

Groundhog (Woodchuck)

May 8–Dec. 15, 2023

Opossum, Raccoon, Striped Skunk

Aug. 1–Oct. 15, 2023

Pheasant

Youth (ages 6–15):

Oct. 28–29, 2023

Regular:

Nov. 1, 2023–Jan. 15, 2024



Quail

Youth (ages 6–15):

Oct. 28–29, 2023

Regular:

Nov. 1, 2023–Jan. 15, 2024

Rabbits

Oct. 1, 2023–Feb. 15, 2024

Sora, Virginia Rail

Sept. 1–Nov. 9, 2023

Squirrels

May 27, 2023–Feb. 15, 2024

Turkey

Archery:

Sept. 15–Nov. 10, 2023

Nov. 22, 2023–Jan. 15, 2024

Firearms:

- ▶ Fall: Oct. 1–31, 2023

Waterfowl

See the Migratory Bird and Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.

Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2023

Woodcock

Oct. 15–Nov. 28, 2023

TRAPPING

Opossum, Raccoon, Striped Skunk

Only foot-enclosing traps and cage-type traps may be used.

Aug. 1–Oct. 15, 2023

**Only hunters selected through a random drawing may participate in these hunting seasons.*

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib.

Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.



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Fall colors are popping up across the Show-Me State. You will even find them adorning the water tupelo and cypress trees in the wetlands at southeast Missouri's Otter Slough Conservation Area. Get out and experience the beauty before it's gone. For more information on fall colors, visit **short.mdc.mo.gov/ZVf**. What will you discover?

📷 by **David Stonner**

Free to Missouri households

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